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Gender differences in achievement goals for introductory accounting course

Aalto University School of Business

27.3.2019

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Background of the research project

Aalto PEDA's 'Writing Circle' Course by Päivi Kinnunen (Autumn 2017) as a final trigger event

- Already before that loose discussions about potential cooperation in education research with Hannu Ojala and Emma-Riikka Myllymäki
- Motivation(s): (1) high-level publication, (2) enhance our peda abilities/skills/competencies, (3) get "5 PEDA credits", (4) and strengthen our teaching portfolios

How did we proceed? (1/3)

- Empirical setting decided: Introductory accounting course → sufficient N
- Extensive LIT review phase to find the core issues in accounting education research
- Interesting topics identified:
  - Achievement goals and course performance
  - The influence of expectations to study accounting on performance
  - Students' approaches to learning
- Discussions within a group, at Writing Circle, and with other people (e.g. Päivi Kinnunen, Lauri Malmi)
- The Writing Circle Deadlines

How did we proceed? (2/3)

- Development of a questionnaire
- Data consists of
  - survey questionnaire about students' achievement goals for the introductory accounting course and expectations of learning accounting in academic year 2017,
  - entrance examination and high school grade point average (HSGPA) and
  - Information about students' performance in the introductory accounting course in 2017.

  → **Sample size: 175 students**

How did we proceed? (3/3)

- Statistical analysis
- Drafting/writing the paper
- Presentations and obtaining comments/feedback:

  The paper has been presented so far in various accounting research workshops: University of Tampere (September, 2018), University of Eastern Finland (Kuopio, October, 2018), Aalto University School of Business (Helsinki, December, 2018), Brunel University, London (December, 2018), ESADE Business School, Barcelona (January, 2019) and University of Auckland (February, 2019). In addition, the paper was presented at the Nordic Accounting Conference (Copenhagen in November, 2018). The paper has been accepted to be presented at the annual congress of European Accounting Association in Paphos (Cyprus) in May 2019.

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Purpose of the study

- The purpose of the study is to explore first-year students' achievement goals for introductory accounting course, and consider the effect of gender
- We focus on the associations between gender and the following:

1. students' achievement goals for the course,
2. students' expectations of learning accounting, and
3. students' course performance.

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Achievement goals

- Achievement goal theory
  - one of the most influential theories of motivation in educational research.

- Two major goal approaches
  - *Performance approach*:
    - the goal to outperform others or demonstrate superior competence
  - *Mastery approach*:
    - the goal to truly master the topic

- Prior accounting education research on achievement goals is scarce!

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Achievement goals

- Performance approach
  - Prior research in other fields: Men are more likely to adopt this goal approach

    (e.g., Elliot & McGregor, 2001; Cavallo et al., 2004; D'Lima et al., 2014)

- Mastery approach
  - Prior research in other fields: Women are more likely to adopt this goal approach

    (e.g., Elliot & McGregor, 2001; D'Lima et al., 2014)

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Achievement goals

Questionnaire (Elliot & Murayama, 2008, *Journal of Educational Psychology*):

1. My aim is to completely master the material presented in this class. (M)
2. I am striving to do well compared to other students. (P)
3. My goal is to learn as much as possible. (M)
4. My aim is to perform well relative to other students. (P)
5. My aim is to avoid learning less than I possibly could. (MA)
6. My goal is to avoid performing poorly compared to others. (PA)
7. I am striving to understand the content of this course as thoroughly as possible. (M)
8. My goal is to perform better than the other students. (P)
9. My goal is to avoid learning less than it is possible to learn. (MA)
10. I am striving to avoid performing worse than others. (PA)
11. I am striving to avoid an incomplete understanding of the course material. (MA)
12. My aim is to avoid doing worse than other students. (PA)

(M = mastery-approach, MA = mastery-avoidance, P = performance-approach, PA = performance-avoidance)

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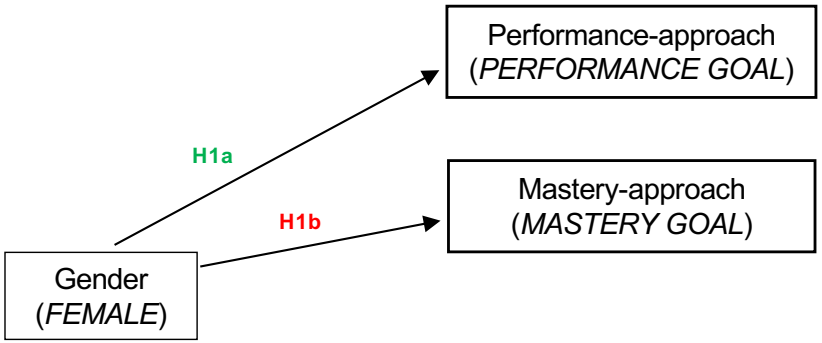
Theoretical model



H1a. Male students have greater performance goal orientation than female students in introductory accounting course.

H1b. Female students have greater mastery goal orientation than male students in introductory accounting course.

Expectations of learning accounting

- Do expectations of learning accounting affect the gender-specific goal-setting?
  - In addition to competitiveness and confidence, gender differences might occur in interest in accounting.
    - However, based on prior studies, we do not have clear understanding about gender differences in expectations of learning accounting.

Expectations of learning accounting

Questionnaire (Duff & Mladenovic, 2015, *The British Accounting Review*)

1. I have a strong desire to excel in my academic achievement.
2. I expect that I will enjoy accounting studies.
3. I expect that I might question the basis on which accounting techniques are founded.
4. I want to see the meaning behind accounting numbers in a business context.
5. I would be interested in exploring the social and economic importance of accounting.
6. I expect that I will do only enough work to simply ‘pass’ the exam.
7. I do not have personal interest in accounting and I expect it to be boring.
8. I expect that studying accounting focuses on numbers.
9. I am worried about my learning in accounting.

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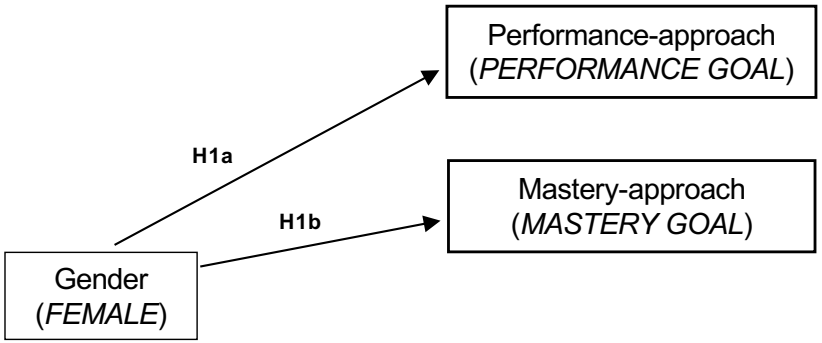

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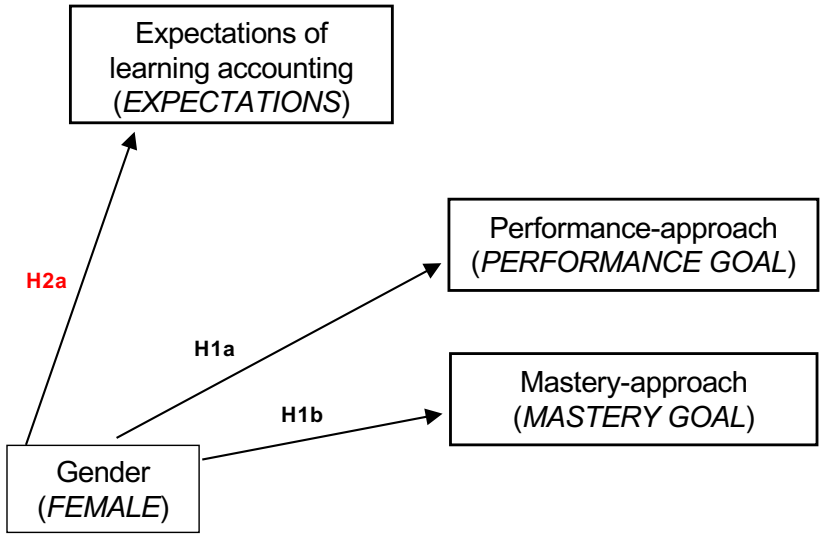
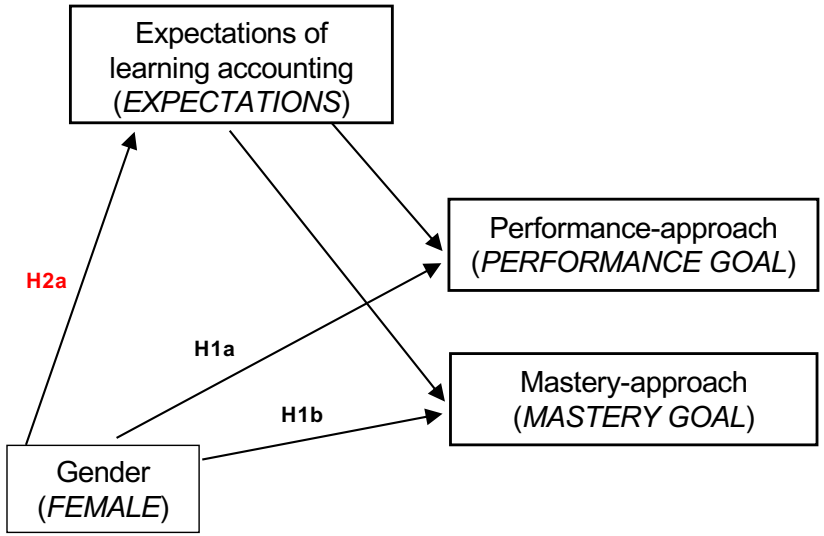


H2a. There are gender differences in expectations of learning accounting in an introductory accounting course.

Theoretical model



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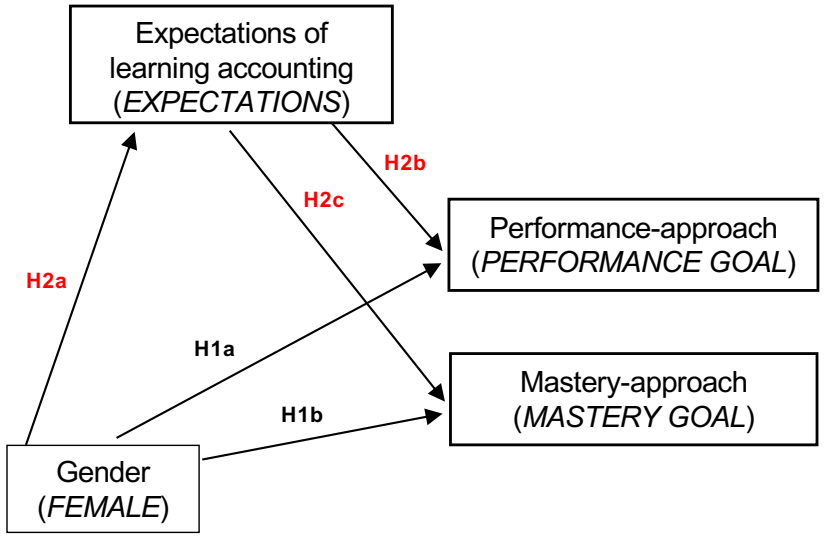

H2a. There are gender differences in expectations of learning accounting in an introductory accounting course.

H2b. Expectations of learning accounting mediates the effect of gender on performance-approach goal.

H2c. Expectations of learning accounting mediates the effect of gender on mastery-approach goal.

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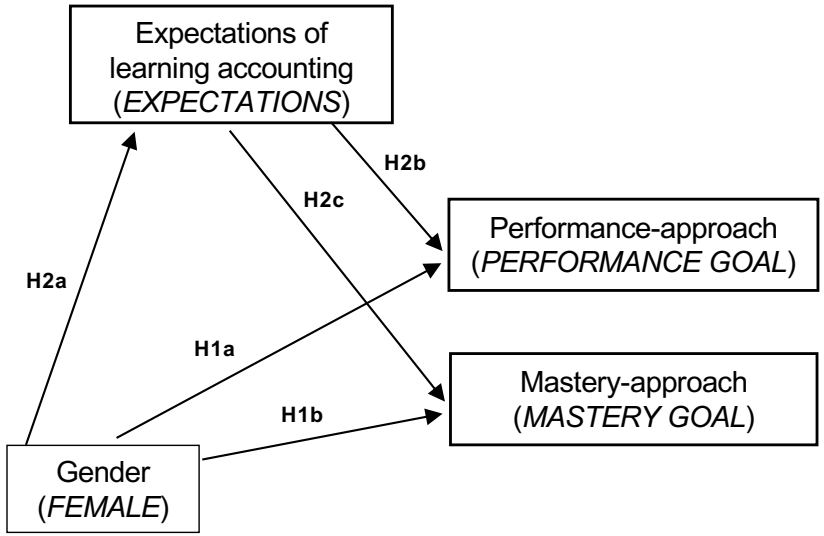
Course performance

- Gender → Course performance in introductory accounting
  - *mixed and inconclusive evidence*
  - Female students outperform male students (e.g., Crawford and Wang 2014)
  - Male students outperform female students (e.g., Koh and Koh, 1999)
  - Statistically insignificant association (e.g., Duff, 2004)

Theoretical model



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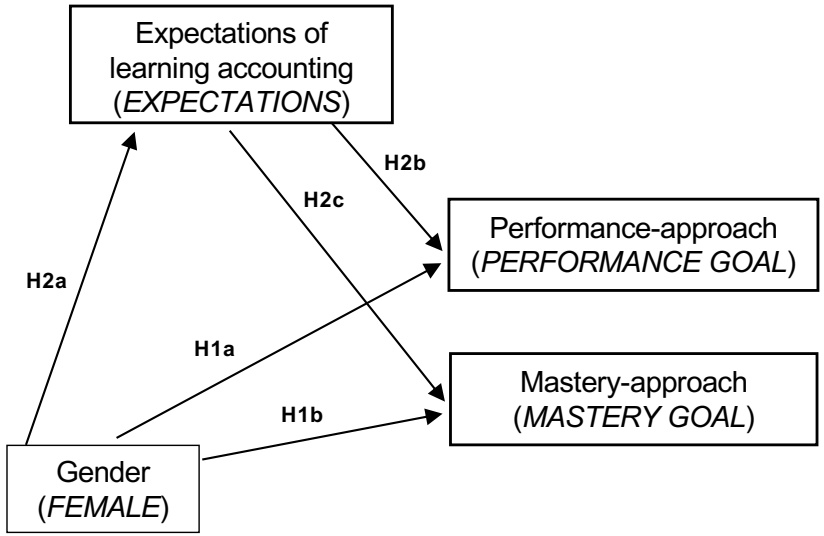
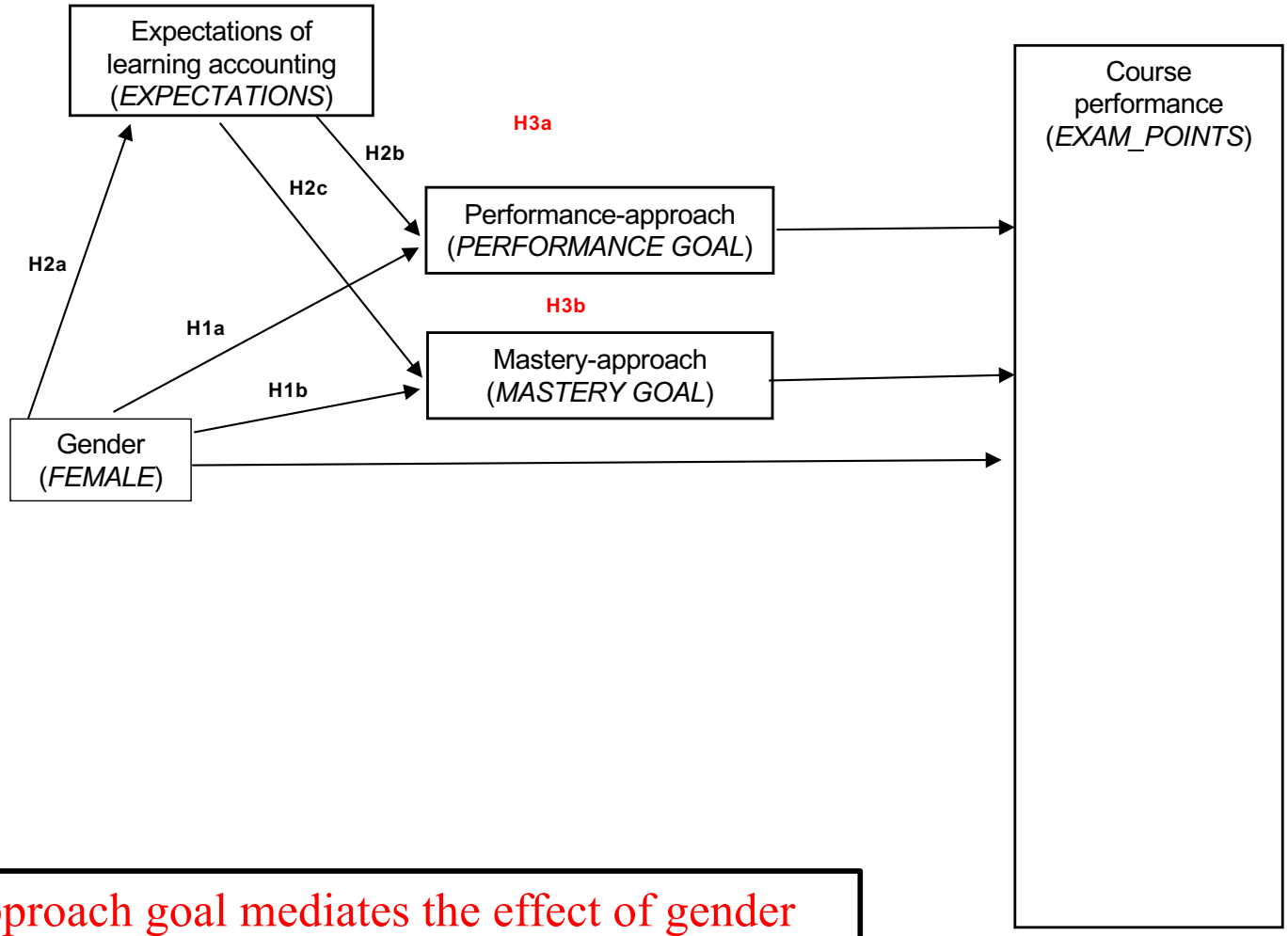


Course performance (*EXAM_POINTS*)

Theoretical model



H3a. Performance-approach goal mediates the effect of gender on course performance in introductory accounting course.

H3b. Mastery-approach goal mediates the effect of gender on course performance in introductory accounting course.

Theoretical model

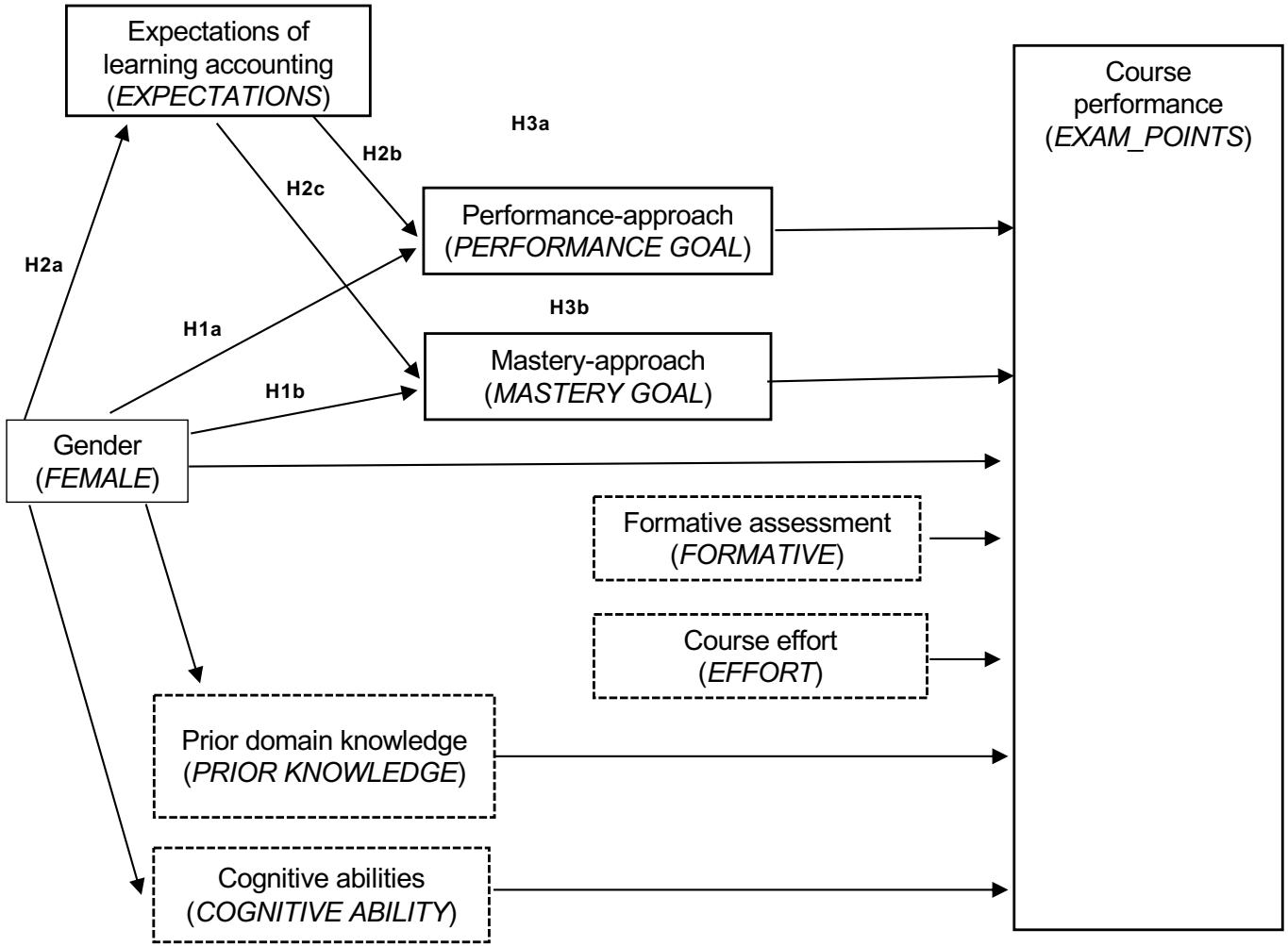


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Table 1. Descriptive statistics

	Female (n=61)			Male (n=114)			Difference	
	Mean	Median	Std.dev.	Mean	Median	Std.dev.	*t*-value	
PERFORMANCE_GOAL	-0.45	-0.58	1.04	0.24	0.24	0.85	4.40	***
MASTERY GOAL	-0.08	-0.05	0.96	0.04	-0.16	0.90	0.81	
EXPECTATIONS	-0.24	-0.10	1.07	0.13	0.17	0.81	2.40	**
EXAM_POINTS	41.16	42.00	8.27	44.60	45.00	6.76	2.78	***
PRIOR KNOWLEDGE	15.07	15.50	3.42	14.00	14.75	3.58	-1.93	*
COGNITIVE ABILITY	28.41	32.00	8.30	25.61	28.00	9.34	-2.03	**
FORMATIVE	15.97	17.00	4.87	17.68	18.00	2.40	2.58	**
EFFORT	4.21	5.00	1.53	4.33	5.00	1.65	0.48	

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Multivariate results

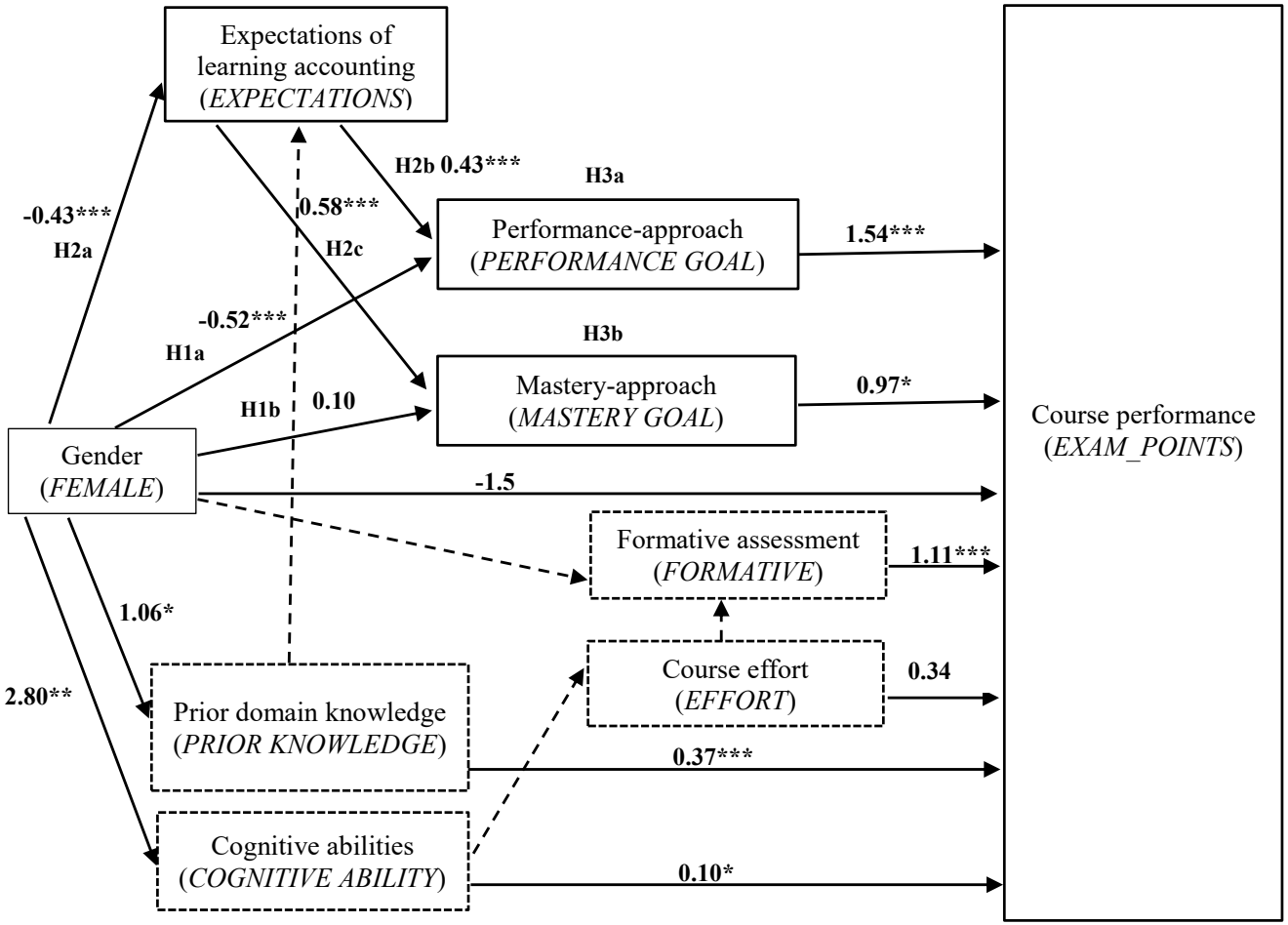

Fig. 2. Results of the path model using structural equation modelling.

Notes: The following symbols indicate significant effects: * = < 0.10; ** = < 0.05; *** = < 0.01.

Multivariate results continued

Table 2. Path analysis with mediation

Panel A. Direct, indirect and total effects of the full model

		(1) Direct effects		(2) Indirect effects		(3) Total effects	
		Coeff.	p-value	Coeff.	p-value	Coeff.	p-value
PERFORMANCE GOAL							
FEMALE	**H1a**	**-0.521**	**<.001**	-0.163	0.015	**-0.684**	**<.001**
EXPECTATIONS		0.434	<.001			0.434	<.001
PRIOR KNOWLEDGE				0.024	0.009	0.024	0.009
MASTERY GOAL							
FEMALE	**H1b**	**0.096**	**0.431**	-0.217	0.012	**-0.121**	**0.406**
EXPECTATIONS		0.578	<.001			0.578	<.001
PRIOR KNOWLEDGE				0.031	0.006	0.031	0.006
EXPECTATIONS							
FEMALE	**H2a**	**-0.433**	**0.002**	0.058	0.112	**-0.375**	**0.009**
PRIOR KNOWLEDGE		0.054	0.004			0.054	0.004
EXAM POINTS							
FEMALE		-1.496	0.157	-1.677	0.033	-3.173	0.005

Panel B. Mediation effects

Hypothesis	Outcome	Mediator	Treatment	Coeff.	p-value
H2b	***PERFORMANCE G.***	***EXPECTATIONS***	***FEMALE***	**-0.188**	**0.006**
H2c	***MASTERY GOAL***	***EXPECTATIONS***	***FEMALE***	**-0.250**	**0.004**
H3a	***EXAM POINTS***	***PERFORMANCE G.***	***FEMALE***	**-0.804**	**0.021**
H3b	***EXAM POINTS***	***MASTERY GOAL***	***FEMALE***	**0.093**	**0.472**

Multivariate results continued

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PRIOR KNOWLEDGE		0.368	0.007	0.067	0.024	0.435	0.002
COGNITIVE ABILITY		0.097	0.080	0.048	0.016	0.146	0.009
MASTERY GOAL		0.966	0.078			0.966	0.078
PERFORMANCE GOAL		1.543	0.004			1.543	0.004
EXPECTATIONS				1.228	<.001	1.228	<.001
FORMATIVE		1.110	<.001			1.110	<.001
EFFORT		0.338	0.272	0.699	<.001	1.037	0.001
PRIOR KNOWLEDGE							
FEMALE		1.063	0.056			1.063	0.056
COGNITIVE ABILITY							
FEMALE		2.796	0.049			2.796	0.049
FORMATIVE							
FEMALE		-1.174	0.005	0.082	0.101	-1.091	0.009
COGNITIVE ABILITY				0.029	0.003	0.029	0.003
EFFORT		0.630	<.001			0.630	<.001
EFFORT							
FEMALE				0.131	0.083	0.131	0.083
COGNITIVE ABILITY		0.047	<.001			0.047	<.001

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Data for additional univariate tests

Consists of

- students' course grades in the introductory accounting course in academic years between 2012–2017
- N = 1702 of which 1086 males and 616 females.

Grades (years)	FEMALE Mean	MALE Mean	Difference, male-female (t-stat.)
All years	3.55	3.97	0.43 (7.62)***
N=	616	1086	
2012	4.10	4.40	0.29 (2.77)***
N=	117	174	
2013	2.94	3.69	0.74 (4.69)***
N=	89	166	
2014	3.65	3.93	0.29 (2.22)**
N=	96	196	
2015	3.60	4.12	0.52 (4.25)***
N=	115	188	
2016	3.27	3.83	0.56 (3.89)***
N=	93	181	
2017	3.55	3.87	0.32 (2.39)**
N =	106	181	

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Summary of the results

- Male students tend to adopt the performance approach goal.
  - That is, the desire to demonstrate superior competence and outperform others, implying that males are more competitive compared to female students

  → Leads to higher course performance

- Male students are more positive in their expectations for learning accounting

  → Affects their goal orientations

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Contribution

- We contribute to accounting education literature related to achievement goals by
  - providing evidence on the links between gender, goal orientation approaches, and performance in the introductory accounting course.
  - showing that gender-specific expectations drive achievement goals.

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Practical implications

- These findings could be considered when designing accounting education
  - Even though female students enter to the university with somewhat higher level of prior knowledge (according to our results), it is alarming that they consider accounting as a less attractive learning endeavor compared to their male counterparts.
  - More competitive goal setting of male students and higher performance as its consequence is another aspect that needs consideration.

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Practical implications at the department

- Discussions with the current teachers of the Introductory course in accounting about the ways how to take into account our findings in motivating female students to study accounting.
- In addition, this is also relevant for the other courses I and my colleagues teach at the accounting department.

Personal development

- Enhanced understanding about
  - Achievement goals
  - Influence of expectations
  - Students' approaches to learning

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